Volunteer Lake Assessment Program Individual Lake Reports

WALKER POND, BOSCAWEN, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	5,888	**Max. Depth (m):**	12.8	**Flushing Rate (yr^{-1}):**	3.2
Surface Area (Ac.):	174	**Mean Depth (m):**	4.5	**P Retention Coef:**	0.51
Shore Length (m):	4,000	**Volume (m^3):**	3,205,500	**Elevation (ft):**	500

TROPHIC CLASSIFICATION

Year	Trophic class
1996	EUTROPHIC

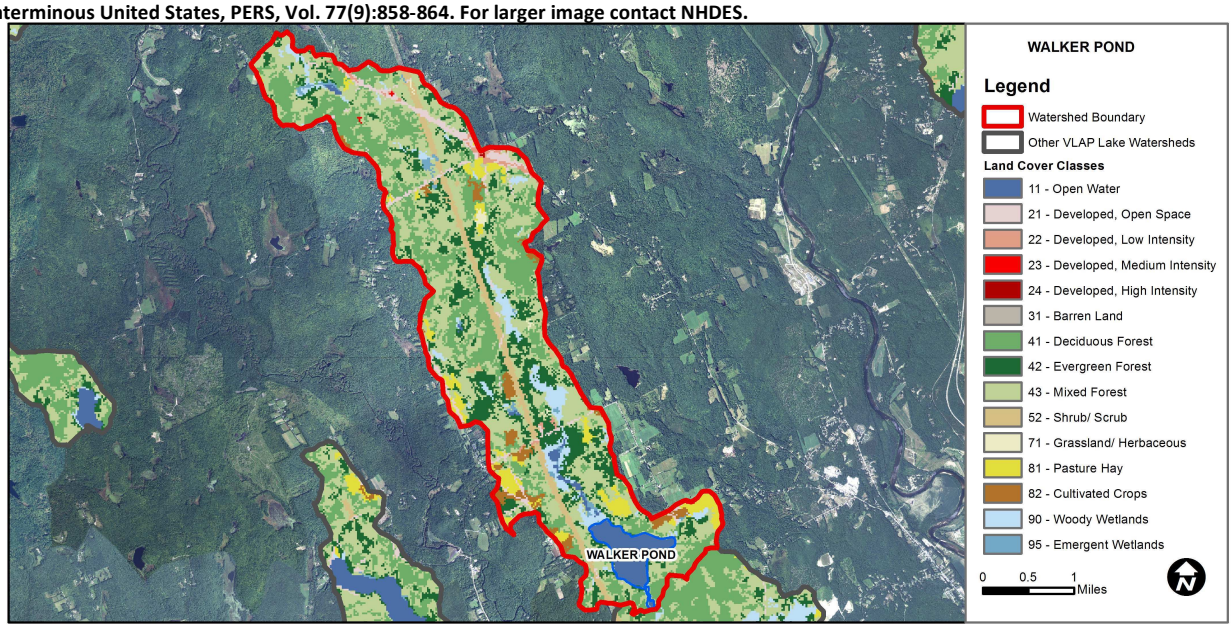
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Very Good	>5 samples and median is < 1/2 threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Very Good	>5 samples and median is < 1/2 threshold.
Primary Contact Recreation	E. coli	No Data	No Data for this parameter.
	Chlorophyll-a	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	3.97	Barren Land	0	Grassland/Herbaceous	0.29
Developed-Open Space	3.4	Deciduous Forest	22.58	Pasture Hay	4.64
Developed-Low Intensity	0.86	Evergreen Forest	15	Cultivated Crops	2.77
Developed-Medium Intensity	0.09	Mixed Forest	36.35	Woody Wetlands	4.64
Developed-High Intensity	0.02	Shrub-Scrub	4.38	Emergent Wetlands	0.8

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
WALKER POND, BOSCAWEN, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels spiked at the end of July and then decreased to low levels in September. Average chlorophyll was slightly greater than the NH lake median.
- **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were slightly greater than the NH lake median values but much less than state standards.
- **E. COLI:** E. coli levels were much less than state standards for public beaches and surface waters.
- **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer) phosphorus levels were low throughout the summer and less than the NH lake median. Metalimnion (middle water layer) phosphorus levels were stable and low, and hypolimnetic (lower water layer) phosphorus was elevated on July 29.
- **TRANSPARENCY:** Transparency decreased slightly at the end of July due to the increase in algal growth and then improved in September due to the decreased algal growth.
- **TURBIDITY:** Epilimnetic and metalimnetic turbidities were low throughout the summer. Hypolimnetic turbidity was elevated at the end of July and September likely due to the accumulation of organic compounds under conditions of oxygen depletion.
- **PH:** pH levels were lower than desirable in the metalimnion and hypolimnion.
- **RECOMMENDED ACTIONS:** Continue chloride monitoring to establish a baseline data set. Chlorophyll levels were elevated mid-summer; however cyanobacteria were not present in the phytoplankton haul. Continue phytoplankton monitoring to scan for potential cyanobacteria problems. Consider updating the trophic status for the pond, as it was rated Eutrophic in 1996, however was on the Mesotrophic/Eutrophic boundary and current monitoring data may support Mesotrophic status.

Dissolved Oxygen & Temperature Profile

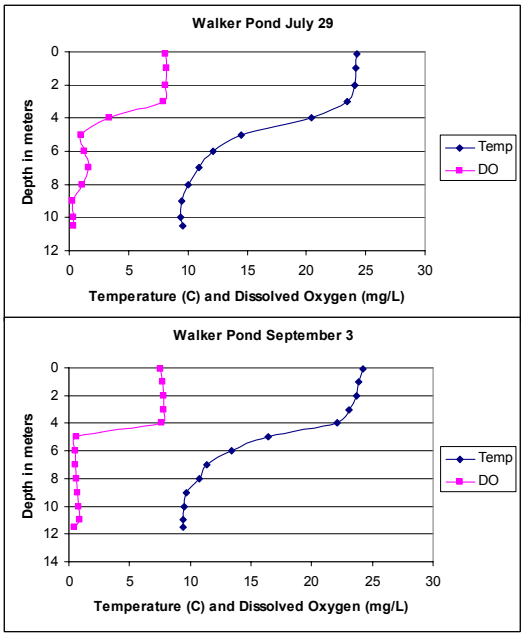
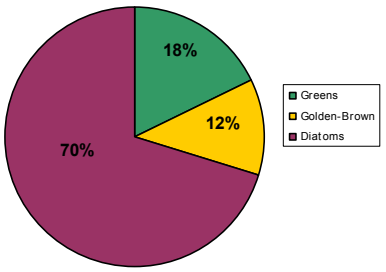


Table 1. 2012 Average Water Quality Data for WALKER POND

Station Name	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
Deep Epilimnion	8.5	5.97	10	70.7	10	8	4.05	3.80	0.82	6.89
Deep Metalimnion				71.0		11			1.10	6.08
Deep Hypolimnion				75.3		19			9.05	6.10

Walker Pond Phytoplankton Population

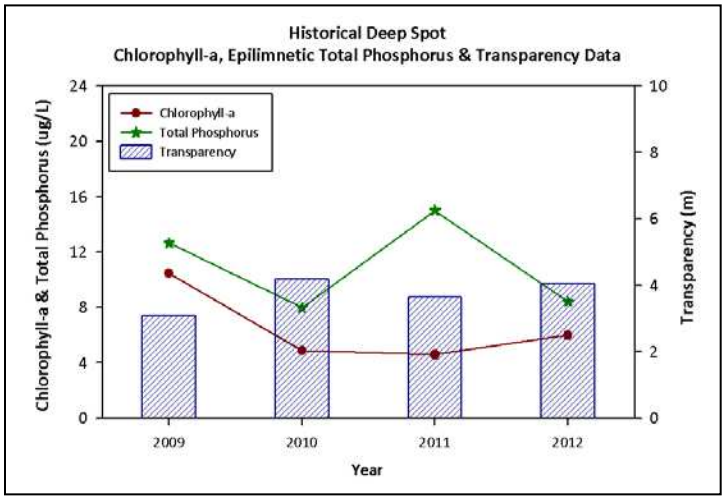


NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	N/A	Ten consecutive years of data necessary for trend analysis.
Transparency	N/A	Ten consecutive years of data necessary for trend analysis.
Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary for trend analysis.



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